Dr. Berry

DE

DEC 16 1968

Dr. Wernher von Braun, Director
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Huntsville, Alabama 35812

Dear Wernher:

Marshall Space Flight Center (MSFC) and Manned Spacecraft Center (MSC) personnel have held several discussions recently relative to the production of certain items of hardware for AAP medical experiments by the MSFC Biomedical Task Group. As a result of these discussions, it is agreed that MSFC will produce the following items of experiment hardware.

M050 - Metabolic Cost of Inflight Tasks

Parallel Metabolic Analyzer Development
Ergometer
Work Task Board

M051 - Inflight Lower Body Negative Pressure

Lower Body Negative Pressure Device

ESS - Experiments Support System

It was also agreed that MSFC would define the requirements for an Experiments Support System from individual experiment End Item Specifications and fabricate the required systems for integration into the Orbital Workshop.

The responsibility for overall management and provision of the AAP medical experiments remains with the Medical Research and Operations Directorate of MSC who will provide MSFC with the total medical experiment package for integration into the AAP. The enclosure, which has been discussed with Mr. R. J. Schwinghamer,

P&VE Laboratory, MSFC, is provided as a general guide of the management agreement for medical experiment hardware items being provided by MSFC.

Sincerely yours,

G. S. Trimble
For

Robert R. Gilruth
Director

Enclosure

bcc:
DA/C. A. Berry, M. D.
L. F. Dietlein, M. D.
DE4/E. E. Kennedy
KA/R. F. Thompson
MSFC/R. J. Schwinghamer, R-P&VE-DIR

DE:JEBost:mh 12-3-68
Retyped: DA:BNewsom:fm 12-11-68

CURRENCES:

OFFICE CODE ▶	DE/GGA	DA/CAB	KA/RFT			
NITIALS OR SIGNATURE ▶						
DATE ▶	12/11/68	12/11/68	12/12/68			

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MANNED SPACECRAFT CENTER - MARSHALL SPACE FLIGHT CENTER

MANAGEMENT AGREEMENT FOR AAP MEDICAL EXPERIMENT HARDWARE ITEMS

The responsibility and authority for overall program management, establishment of requirements, direction, engineering, and operations of medical experiments has been assigned to the Manned Spacecraft Center (MSC). Accordingly, MSC has entered into an agreement whereby Marshall Space Flight Center (MSFC) will provide specific items of hardware for certain AAP medical experiments. The intent of this document is to delineate the management procedures to be followed during the course of this agreement.

The management plan will follow the same general mode of operation as any other contract that MSC has where a contractor is providing flight hardware for medical experiments. In general, this means that the establishment of the requirements and the End Item Specification is the responsibility of MSC with MSFC being responsible to build a product that meets the requirements of the End Item Specification. MSC will retain the overall management as on all other medical experiment hardware contracts, and it is therefore essential that MSFC respond to MSC in the same manner as would any other contractor. This is the basis on which this management plan is formulated. In accordance with this, monthly management meetings will be held, alternating between Centers, to discuss problems, schedules, funding, and overall management aspects of the effort. Further, for continuity, the MSC single point of contact will be George G. Armstrong, M.D., Chief, Biomedical Technology Division of the Medical Research and Operations Directorate, or his designated representative. The MSFC single point of contact will be Robert J. Schwinghamer, P&VE Laboratory, or his designated representative.

The procedure through which the hardware items required by the Biomedical Technology Division, Medical Research and Operations Directorate, will be built and delivered are as follows:

1. Definition of Required End Item

   a. Initial

The hardware required will be described in a flight item End Item Specification (EIS) prepared by MSC in accordance with "Apollo Applications Program Experiment General Requirements" MSC-KA-D-68-1. The EIS's will be provided to MSFC to define the requirements for the equipment documentation, quality assurance, reliability, testing, configuration management, and management reporting. It is agreed that Configuration Control Board (CCB) action on hardware design will be conducted as indicated in paragraph b. below; however, any changes in the EIS basic requirements would require the same approval as the EIS. MSFC will review the EIS's and propose deviations from the specifications on a paragraph-by-paragraph basis. Subsequent to MSC review of the proposed MSFC changes, MSFC and MSC will conduct specification negotiations to reach final agreement on the applications of the

specification. Final design approval authority with respect to performance, quality, and reliability will be retained by MSC. Interface definition, weight, and volume constraints within individual experiments may be delegated to MSFC. The basic ground rule will be that any aspect of the design which affects the capability of the equipment to perform the required measurements or provide the required readouts, interfaces with the subject (astronaut), affects the reliability of the experiment equipment, or has any potential impact on the safety of the crew shall be subject to design approval by MSC.

b. Modifications

Any modifications required, whether by MSC or MSFC, during the early design phase of the hardware items and until the Critical Design Review (CDR), will be approved through the office of Dr. Armstrong. When approval of a modification is granted by telephone, appropriate written documentation covering same will be initiated by the requestor of the modification. After the CDR, all modifications will be subject to formal CCB action. This Board will be chaired by MSC.

2. Funding

At the time the EIS is discussed and accepted by both parties, MSFC will prepare detailed cost projections of the total funding required for each item of hardware to be developed. Cost projections will be reviewed, approved, and/or changed as necessary during the monthly management meetings. Based upon approved cost projections, MSFC will submit a budget estimate for each medical experiment for which hardware is being developed. Budget estimates will be time phased and the financial requirements will be identified as to the item of hardware. Periodic review and adjustment of the budget estimate will be done by MSFC upon request of MSC, or as required by program changes.

Funding to MSFC will be executed by subauthorization (NASA Form 506) approved by MSC. Funding increments will be substantially in accordance with the time-phased requirements reflected in the budget estimate prepared by MSFC. It shall be the objective of MSC to provide increments adequate for support of the designated medical experiment hardware items for a period of not less than one fiscal quarter. Should MSFC funding requirements exceed that shown in submitted budget estimates, or should the subauthorization be inadequate for support through a full quarter, MSFC will provide MSC with an estimate of the date that available funds will be exhausted. It shall be the responsibility of MSFC to advise MSC of new funding requirements with detailed substantiation at least 30 days prior to the need date. Subauthorizations (506) will identify funding by specific experiment (or the nine-diget primary work code). Cumulative commitments will not exceed funding limitations by experiment. In addition to commitments and obligations, cost will be recorded and reported for the hardware items and at the experiment level on the official MSFC accounting records.

3. Reporting

MSFC will provide MSC with SARP charts as negotiated on each experiment hardware item, updated monthly. Narrative progress reports including progress of design, fabrication, and testing will be provided no less frequently than monthly. Provisions will be made in the reporting system to identify immediately to MSC any potential problems and/or slippages in the hardware delivery schedule.

AA/Director

DEC 3 1968

DE/Chief, Biomedical Technology Division

Designation of AAP biomedical equipment hardware items to be developed by MSFC

1. PURPOSE

Dr. von Braun's letter of August 2, 1968, proposed that MSFC design and develop certain AAP biomedical experiment hardware. MSC's answer to this letter, DB12 dated September 5, 1968, expressed interest in the offer but indicated that further discussions were required before exact hardware items to be built by MSFC could be determined. The enclosed letter relates the results of the further discussions and lists the initial hardware items to be built by MSFC.

2. DISCUSSION

There have been several working sessions between MSC and MSFC personnel directly involved in this effort during the past 3 months, and it is felt that MSFC can do a good job in providing the hardware covered in the enclosed letter.

3. CLEARANCES

The content of this letter has been discussed with AAP and is routed through that office for concurrence.

4. RECOMMENDATIONS

Recommend signature.

Original Signed By
GEORGE G. ARMSTRONG, JR., M.D.

George G. Armstrong, Jr., M.D.

Enclosure

DE:JEBost:mh 12-4-68

Return to DE

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MSC
MAIL ROOM
AUG 7 10 25 AM '68

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA 35812

IN REPLY REFER TO DIR

AUG 2 1968

ACTION AA AC

INFO AA, KA, TA, DA, AC
DB, EC, BE, CA, PA

Dr. Robert R. Gilruth
Director, Manned Spacecraft Center
National Aeronautics and Space Administration
Houston, Texas 77058

Dear Bob:

We have reviewed AAP biomedical experiment hardware requirements with a view to the possibility that production of this hardware could be expedited through design and development at MSFC.

Members of your AAP Office, Medical Research and Operations Directorate, Biomedical Research Office and Crew Systems Division assisted in our review of the various experiments for candidate pieces of hardware. We identified the following experiments and hardware items as being of such nature and at a stage of definition for development at MSFC:

1. Experiment M050, Metabolic Costs of Inflight Tasks

a. Work Task Board (This development to include unit for M050 and similar unit for experiment M508, Astronaut EVA Hardware Evaluation)

b. Ergometer

c. Gas Analyzer (Backup design developed at MSFC with primary design retained by MSC)

2. Experiment M051, Cardiovascular Function - Lower Body Negative Pressure Device

3. Experiment Support Systems (For electrical, data and mechanical services to M018, Inflight Vectorcardiogram; M050, Metabolic Costs; M051, Cardiovascular Function; and M052, Human Vestibular Function)

In each of these cases, miscellaneous medically oriented and/or astronaut-oriented parts, such as helmet, hoses, masks, temperature probes, blood pressure cuffs, etc., would be GFE'd to MSFC by MSC so that the entire experiment system could be integrated during development.

We are prepared to proceed with this effort. A detail plan could be ready for your review within a week or so after we hear from you on this matter.

Sincerely yours,

Wernher von Braun
Director